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10/500,902	05/19/2006	David S. McGrath	LAKE038	8847
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DOV ROSENFELD 5507 COLLEGE AVE SUITE 2 OAKLAND, CA 94618			SONG, DAEHO D	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dov@inventek.com
uspto@inventek.com
dovdov@gmail.com

Office Action Summary	Application No. 10/500,902	Applicant(s) MCGRATH ET AL.	
	Examiner DAEHO D. SONG	Art Unit 2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/6/04; 9/29/04; 5/19/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the initial Office Action based on the application number 10500902, filed May. 19, 2006. Claims 1-39, as originally filed, are currently pending and have been considered below. Claims 1, 22, 26, 28, 33, 34, 35 and 37 are the independent claims.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 33, 34, 37, and 38 are rejected because the claimed invention is directed to non-statutory subject matter. At lines 6 and 20 of page 7 of the instant specification, applicant has provided evidence that applicant intends the “*computer-readable medium*” in Claims 33, 34, 37, 38 and 39 to include transmitting audio “*signals*”. As such, the claims are drawn to a form of energy. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object to constitute a machine or a manufacture within the meaning of 35 USC 101. Energy is not a combination of substances and therefore not a composition of matter. Therefore, it fails to fall within a statutory category.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7, 8 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitations “M closest”, “N audio sources” and “M loudest” of Claims 7, 8 and 39 are indefinite because they are not defined in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15 and 22-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Weiss (U.S. Patent No. 7,346,654).

Weiss teaches:

Claim 1. An interactive spatialized audiovisual system for linking a plurality of remote user terminals, the system comprising:

a networked computer (fig. 2; col. 1 lines 40-50);

an associated user database including user status information (col. 2 lines 30-42; col. 3 lines 10-20: user status information, such as user's location, direction, listening status and talking status);

input means for receiving at the computer a plurality of audio streams and associated locating data from the remote user terminals for virtually locating the users relative to one another within a virtual user environment (col. 2 lines 60-67; col. 3 lines 1-20; col. 7 lines 8-25: receiving audio signals and associated location information of the users in a virtual environment);

selection means for enabling selection of at least a first group of the audio streams in a first selection process based on status information in the user database (col. 4 lines 14-30: selection of a group of participant according to the user status information);

output means for outputting the selected group of audio streams and associated locating data for spatialization of the selected group of audio streams relative to a first listener-based audio reference frame which is substantially coherent with visual representations of the audio sources defined by the locating data at a first user terminal (col. 2 lines 50-56; col. 3 lines 1-8: outputting audio streams of the selected group and associated location information in their spatial relationship with respect to each

participant as movable visual symbols/representations).

Claim 2. A system according to claim 1, further comprising first spatialization means for spatializing the selected group of audio streams (fig. 4; col. 5 lines 22-27: spatializing the selected group of audio streams).

Claim 3. A system according to claim 1, further comprising merging means for merging at least some of the audio streams into a merged audio stream for transmittal to the user terminal, and second spatializing means for spatializing the merged stream so as to provide for a spatialized background audio effect in the audio reference frame at the user terminal (fig. 4; col. 5 lines 53-60: spatializing the merged stream to provide audio effect for each participant in the group).

Claim 4. A system according to claim 1, wherein the selection means are arranged to select different groups of audio streams according to different selection processes based on the user status information in the user database, for transmission to the corresponding user terminals (fig. 12; col. 4 lines 14-30: selecting different groups of audio streams).

Claim 5. A system according to claim 1, wherein the user status information is chosen from a group including user location data which serves to locate the user in the virtual environment, user orientation data which serves to orientate the user both with respect

to the other users and to the virtual environment, user listening status information, and user talking status information (col. 2 lines 30-42; col. 3 lines 10-20: user status information, such as user's location, direction, listening status and talking status).

Claim 6. A system according to claim 5, wherein the user listening status information is arranged to allow the user to listen to other selected users or groups in the environment (fig. 10A; col. 10 lines 35-55: allowing the user to listen to other users).

Claim 7. A system according to claim 5, wherein the selection means includes a selector for selecting M closest audio sources from N audio sources (col. 10 lines 14-20: selecting the closest audio stream for eavesdropping into another conversation).

Claim 8. A system according to claim 5, wherein the selection means includes a selector for enabling the selection of M loudest sources based on at least one of the following, namely the amplitude of the source signal and the distance of the source from the listener (col. 1 lines 13-20: algorithms of loudest audio sources).

Claim 9. A system according to claim 5, wherein the selection means includes a selector for enabling a user-driven selection process determined by the subject user or other users (col. 2 lines 57-59: selecting avatars by the user to join or leave the conversation).

Claim 10. A system according to claim 5, wherein the selection means includes a selector for enabling a moderator-driven selection process in which a "moderator" in the environment is able to control the talking and listening status of the other users (col. 6 lines 39-60: the meeting room inspector as "moderator" to control the talking and listening status).

Claim 11. A system according to claim 5, in which the selection means includes a selector for enabling a selection based on the geography or topology of the virtual environment, in which features of the environment are arranged realistically to affect the listening capability of users in the environment, so as to provide a coherent visual and sonic landscapes (col. 2 lines 30-55: providing a visual sense of presence and a spatial sense of presence according to location and direction of participant to affect the listening capability of users).

Claim 12. A system according to claim 11, wherein the features include barriers defining one or more chat rooms, with at least some of the audio streams in a particular room being summed or merged and spatialized to achieve a background reverberation effect characteristic of that particular room (fig. 4).

Claim 13. A system according to claim 11, further comprising means for merging and spatialising the audio streams in adjoining rooms or areas to create "threshold" effects at entrance/exit points representations of the combined noise emanating from said

adjoining room or area (figs. 4 & 5; col. 7 lines 25-44: thread/reflector for each client subsystem for merging and spatialising).

Claim 14. A system according claim 11, further comprising means for generating "dry" room signals using summed non-reverberated audio sources (fig. 4; col. 5 lines 35-52: summed direct audio sources).

Claim 15. A system according to claim 11, further comprising means for generating "wet" room signals using summed reverberated audio sources (fig. 11; col. 13 lines 40-60: summed indirect audio sources).

Claim 22.

The subject matter recited in Claim 22 corresponds to the subject matter recited in Claim 1. Thus Weiss discloses every limitation of Claim 22, as indicated in the above rejections for Claim 1.

Claim 23. A method according to claim 22, further comprising: enabling the user status data to be altered, reading the altered user status data, and selecting at least one of the audio streams based on the altered user status data, wherein at least one of the audio streams selected using the altered user status data is different to the prior selected streams (col. 7 lines 26-43 and 55-67: updating user's input audio stream and synchronizing the updated audio packet with the other audio packet).

Claim 24. A method according to claim 22, which includes the steps of: merging at least some of the audio streams into at least one merged audio stream, transmitting the merged audio stream to the first listener destination, and spatializing the merged audio stream either before or after transmitting it so as to provide a background audio effect within the virtual environment (fig. 4; col. 5 lines 53-60: spatializing the merged stream to provide audio effect for each participant in the group).

Claim 25. A method according to claim 24, in which the merged audio stream includes audio streams which have not been individually selected (fig. 10A).

Claim 26.

The subject matter recited in Claim 26 corresponds to the subject matter recited in Claims 1 and 3, cooperatively. Thus Weiss discloses every limitation of Claim 26, as indicated in the above rejections for Claims 1 and 3.

Claim 27. A method according to claim 26, wherein multiple selection processes are used to select the audio streams according to at least one predetermined algorithm, the selected audio streams and associated locating information are transmitted to multiple listener destinations, and visible representations of the locations of at least the selected audio streams are displayed at the multiple listener destinations, with each of the selected audio streams being spatialized at the multiple listener destinations or before

they are transmitted thereto in audio reference frames which are substantially coherent with the visible representations of the audio sources (fig. 11; col. 13 lines 25-60: multiple selection processing for multiple sound sources and their visual representations of the locations of the selected audio streams).

Claim 28. A system for providing for spatialized conversation over a network environment, the system comprising: a plurality of user terminals (fig. 2; col. 1 lines 40-50); a computer network capable of streaming audio streams to the user terminals, each of the audio streams including associated spatialization information (col. 2 lines 30-42; col. 3 lines 10-20: user status information, such as user's location, direction, listening status and talking status); a rendering system for rendering the audio streams to predetermined virtual locations around a user using the associated spatialization information (col. 2 lines 60-67; col. 3 lines 1-20; col. 7 lines 8-25: receiving audio signals and associated location information of the users in a virtual environment); and a user interface for virtually spatially locating a user amongst the audio streams; wherein the rendering system spatializes the audio streams so as to maintain a substantially spatially coherent audio reference frame around the user, the user interface includes a visual indicator of the spatial position of each of the audio streams around a listener and the rendering system maintains a substantially spatially coherent audio reference frame relative to the visual indicator (fig. 5; col. 2 lines 60-67; col. 3 lines 1-8: a user interface for audio-visual input and output, spatializing the audio streams, including visual representations of the spatial position of respective symbols on the user interface).

Claim 29. A system according to claim 28, wherein each stream includes user ownership information and the system includes an audio stream access interface for granting access to the audio streams (col. 2 lines 30-56).

Claim 30. A system according to claim 28, wherein the rendering system includes an attenuator to attenuate audio sources located virtually remotely from a current user and a merger to merge audio sources located virtually remotely from a current user (col. 2 lines 30-42).

Claim 31. A system according to claim 30, wherein the rendering system is located adjacent a user and the audio sources are streamed over a computer network (fig. 2; col. 1 lines 40-50).

Claim 32. A system according to claim 1, wherein the virtual user environment is a chat room environment (col. 2 lines 5-25).

Claim 33.

The subject matter recited in Claim 32 corresponds to the subject matter recited in Claim 22. Thus Weiss discloses every limitation of Claim 32, as indicated in the above rejections for Claim 22.

Claim 34.

The subject matter recited in Claim 34 corresponds to the subject matter recited in Claim 26. Thus Weiss discloses every limitation of Claim 34, as indicated in the above rejections for Claim 26.

Claim 35.

The subject matter recited in Claim 35 corresponds to the subject matter recited in Claim 1. Thus Weiss discloses every limitation of Claim 35, as indicated in the above rejections for Claim 1.

Claim 36.

The subject matter recited in Claim 36 corresponds to the subject matter recited in Claim 3. Thus Weiss discloses every limitation of Claim 36, as indicated in the above rejections for Claim 3.

Claim 37.

The subject matter recited in Claim 37 corresponds to the subject matter recited in Claim 33. Thus Weiss discloses every limitation of Claim 37, as indicated in the above rejections for Claim 33.

Claim 38.

The subject matter recited in Claim 38 corresponds to the subject matter recited in Claim 35. Thus Weiss discloses every limitation of Claim 38, as indicated in the above rejections for Claim 35.

Claim 39.

The subject matter recited in Claim 39 corresponds to the subject matter recited in Claims 7, 8, 9, 10 and 11, cooperatively. Thus Weiss discloses every limitation of Claim 39, as indicated in the above rejections for Claims 7, 8, 9, 10 and 11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss in view of Virolainen: U.S. Patent Application Pub. No. 2003/0063574.

Claim 16:

As indicated in the above rejection, Weiss discloses every limitation of Claim 2.

Weiss fails to expressly disclose spatialization of audio streams for transmission to the user terminals.

Virolainen expressly teaches spatialization of audio streams for transmission to the user terminals.

Virolainen teaches:

Claim 16. A system according to claim 2, wherein the first spatialization means is arranged to process selected groups of audio streams at the networked computer to derive spatialized audio streams for onward transmission to at least the first selected user terminal (fig. 7; [0011]: determining selected groups of audio streams for transmission to the user's terminals).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with spatialization of audio streams for transmission to the user terminals, as taught by Virolainen, in order to provide a way of determining audio streams from user terminals and of transmitting the combined audio streams to the user terminals (see [0011]).

Claim 17:

As indicated in the above rejection, Weiss discloses every limitation of Claim 2.

Weiss fails to expressly disclose spatialization of audio streams for transmission to the user terminals.

Art Unit: 2176

Virolainen expressly teaches spatialization of audio streams for transmission to the user terminals.

Virolainen teaches:

Claim 17. A system according to claim 2, wherein the first spatialization means are provided at each of the user terminals for processing of selected groups of audio streams from the networked computer (fig. 7; [0011]: providing processing of the selected groups of audio streams).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with spatialization of audio streams for transmission to the user terminals, as taught by Virolainen, in order to provide a way of determining audio streams from user terminals and of transmitting the combined audio streams to the user terminals (see [0011]).

Claim 18:

As indicated in the above rejection, Weiss discloses every limitation of Claim 2.

Weiss fails to expressly disclose a binaural processor.

Virolainen expressly teaches a binaural processor.

Virolainen teaches:

Claim 18. A system according to claim 2, wherein the first spatialization means includes a binaural processor ([0043]: a binaural processor for producing binaural signals).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with a binaural processor, as taught by Virolainen, in order to provide a way of producing binaural signals (see [0043]).

Claim 19:

As indicated in the above rejection, Weiss discloses every limitation of Claim 3.

Weiss fails to expressly disclose spatialization of merged audio streams for transmission to the user terminals.

Virolainen expressly teaches spatialization of merged audio streams for transmission to the user terminals.

Virolainen teaches:

Claim 19. A system according to claim 3, wherein the second spatializing means is arranged to process the merged group of audio streams at the networked computer to derive a spatialized merged audio stream for onward transmission to at least the first selected user terminal ([0027]: spatializing to process the combined/merged group of

Art Unit: 2176

audio streams for transmission to user's terminal).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with spatialization of merged audio streams for transmission to the user terminals, as taught by Virolainen, in order to provide a way of determining audio streams from user terminals and of transmitting the combined audio streams to the user terminals (see [0011]).

Claim 20:

As indicated in the above rejection, Weiss discloses every limitation of Claim 2.

Weiss fails to expressly disclose spatialization of merged audio streams for transmission to the user terminals.

Virolainen expressly teaches spatialization of merged audio streams for transmission to the user terminals.

Virolainen teaches:

Claim 20. A system according to claim 3, wherein the second spatialization means are provided at each of the user terminals for spatializing merged groups of audio streams at each user terminal ([0027]: producing combined/merged output signal for each user's terminal for spatialization).

Art Unit: 2176

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with spatialization of merged audio streams for transmission to the user terminals, as taught by Virolainen, in order to provide a way of determining audio streams from user terminals and of transmitting the combined audio streams to the user terminals (see [0011]).

Claims 21:

As indicated in the above rejection, Weiss discloses every limitation of Claim 2.

Weiss fails to expressly disclose a binaural reverberation processor.

Virolainen expressly teaches a binaural reverberation processor.

Virolainen teaches:

Claim 21. A system according to claim 3, wherein the second spatialization means includes a binaural reverberation processor ([0043]: a binaural processor for producing binaural combined signals, such as background sounds).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Weiss to incorporate with a binaural reverberation processor, as taught by Virolainen, in order to provide a way of producing binaural combined signals, such as background sounds (see [0011]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAEHO D. SONG whose telephone number is (571)272-7524. The examiner can normally be reached on Mon-Fri 7:30-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on 5712724137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daeho D Song/
Examiner, Art Unit 2176

*/Rachna S Desai/
Primary Examiner, Art Unit 2176*